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Abstract

This study examined the effects of the Good Behaviour Game on teacher and student behaviour in a general education classroom. Using a multiple baseline design across classes, baseline rates of disruptive behaviours were collected in each class and the class was divided into two teams. Each team then competed to obtain reinforcers for good behaviour. High baseline rates of disruptive behaviour were reduced significantly when the game was in first introduced. When it was introduced a second time the teachers were instructed to increase their positive comments. Surprisingly, there was little evidence of an increase in positive comments from the teachers. Findings are discussed in the context of the need for teacher training in behaviour analysis.

Key words: inappropriate behaviour, secondary school children, Good Behaviour Game, classroom management, positive comments, maintenance, teacher training, behaviour analysis.

Introduction

Merrett and Wheldall (1978) surveyed teachers' opinions in the West Midlands borough of the United Kingdom as to what were the most troublesome classroom behaviours. Results indicated that ‘talking-out-of-turn’ was the most troublesome behaviour and that it accounted for one third of misbehaviour in classrooms. When weighed against problems such as violent behaviour or illiteracy, talking-out-of-turn may not appear to be a serious problem. However, unsolicited talking in the classroom interferes with the work habits of cooperative students, wastes teacher time, causes aggravation to both pupils and teacher, and quiet pupils are often ignored.

More generally, if disruptive behaviour is allowed to continue without successful intervention it can reach levels where completion of academic assignments is impeded and teaching time is spent reprimanding students. In a survey of more than 10,000 teaching staff across the UK it was found that up to five weeks of teaching time are lost each year because of disruptive behaviour (Coughlan, 2009). Other news items that have hit the headlines recently in the UK include a report by Ofsted (Office for Standards in Education, Children's Services and Skills in the UK) claiming that disruptive behaviour was damaging pupils’ life chances (Satchell, 2014). When Ofsted inspectors review school performances they include statistics on the behaviour of students. Worryingly, the extent of the problem with disruptive behaviour is so pervasive that another headline focused on the possibility that

some schools were massaging figures to avoid punitive consequences (Gordon, 2015). Sellgren (2013) noted that The Association of Teachers and Lecturers in the UK was concerned from findings showing that 53% of 844 members considered disruptive classroom behaviour to be deteriorating over the past five years.

Many teachers who are not behaviorally trained would advocate a “get tougher in the classroom” strategy to regain respect, control and authority. A study by Van Houten, Nau, Mckenzie-Keating, Sameoto and Colavecchia (1992) exemplifies this approach. They found that when verbal reprimands were delivered with eye-contact and a firm grasp of students' shoulders, a reduction in disruptive behavior was observed.

One of the simplest ways to enable classroom control is through the use of group contingences (Ninness, Ellis, & Ninness, 2000). This strategy ensures all members of the group gain or loses according to a group standard. Group contingencies also eliminate differential treatment of individuals and are thus both cost and time effective, a view echoed by Litow and Pumroy (1975). In this study we examine the effectiveness of a group contingency called the Good Behavior Game that was pioneered by Barrish, Saunders and Wolf (1969). This is an inter-dependent-group oriented contingency system (Sulzer-Azaroff & Mayer, 1991). In this type of system, receiving reinforcement is contingent upon a specified level of group performance (e.g., the frequency of out-of-turn-talking remaining below ten instances). Interventions based on

group contingencies such as the Good Behavior Game automatically harness the valuable reinforcement of peer attention. Numerous studies have demonstrated that peer attention is a powerful reinforcer for disruptive behavior (e.g., Northup, Broussard, Jones, George, Vollmer & Herring, 1995).

Since it’s conception many modified versions of the Good Behavior game have been implemented with resounding success. For example, Fischbein and Wasik (1981) used it in a library setting while Saigh and Umar (1983) demonstrated the game's cross-cultural validity when they used it in an elementary school in The Sudan. Research into the 'normal' classroom has, for the most part, however, focused on the primary/junior schools (Barrish, Saunders & Wolf, 1969; Saigh & Umar, 1983; Harris & Sherman, 1973; Merrett & Wheldall, 1978; Fischbein & Wasik, 1981) with relatively few studies concentrating on secondary schools (Mc Namara & Harrop, 1979).

> In 2003, the first commercialized version of the game was published with Hzelton, and now, the Game is in over 8,000 classrooms in the United States and Canada alone.
>
> Fast-forward to March 2009 and the release of the Institute of Medicine report on the prevention of disorders. The report was ground-breaking, right on page one: Mental, emotional, and behavioral disorders are completely preventable . … Just as

> important, if not as surprising, were the recommendations of effective prevention strategies: almost every strategy had roots in behavior analytic literature and practice. Of the listed techniques, the Good Behavior Game was among the most cited.
> (Gokey & Pritchard, 2015, p. 38)

In the current study, a multiple baseline across settings (i.e., classes) was used to examine the effectiveness of the Good Behavior Game with 11-12 year-old children in a secondary school. The secondary school differs greatly from the primary school in that there is much less interaction between teachers and pupils as students move from classroom to classroom, subject to subject, teacher to teacher. Establishing control over the students' behaviour in a classroom is not an end in itself, however. The main objective is to fade out any intervention implemented as effectiveness increases (Vargas, 2013). Thus, the objective is to establish the student's environment as the source of control over the student's behaviour (i.e., establish discriminative control by the classroom and teacher) so that access to positive reinforcement is increased and the use of aversive consequences is decreased (Chance, 2014). When access to positive reinforcement in the classroom is increased for appropriate behaviour, then the appropriate behaviour should be maintained while the disruptive behaviour decreases. To examine this in the current study we initially implemented the game across three classrooms to examine its effects. In addition, because teachers play a central role in delivering positive consequences for

appropriate behaviour, they were asked in one condition to increase the number of positive comments they deliver during the game. This was done to determine whether changes in student behaviour would be maintained by teacher comments alone when the game was removed.

Method

Participants

Participants were 14 boys and 6 girls aged between 11-12 years old who attended a general education classroom in N. Ireland. The 20 students were in their 1st year of school and their class was selected for the Good Behaviour Game (GBG) due to their inattention and disruptive behaviours. The study began after the students had been attending the school for 4 months and it was reported that classroom control was a significant problem with this class in particular. The class was taught by three teachers across three different subject areas and a classroom assistant was in attendance at all times.

Observations

Behavioural observations took place from the back of the classroom twice a week in English, History, and Geography classes. During this time students worked both independently and as a group with different teachers for each class but they were not made aware of the reasons

for the presence of the reseacher. Initial observations identified that the frequency of ***Talking out***, ***Turning Around in the Chair*** and being ***Out of Seat*** were the behaviours of most concern to all three teachers.

Inter-observer reliability

The teacher or classroom assistant and the researcher simultaneously but independently observed the frequency of the three behaviours during each of the sessions. Inter-observer reliability (IOR) was calculated by dividing the smaller of the two frequencies by the larger and then multiplying by 100 to find the percentage agreement. IOR for ***Talking out*** across all sessions: English - Team A 99%, Team B 89%; History: Team A 98%, Team B 99%; Geography: Team A 99%, Team B 99%. IOR for ***Turning around in chair*** across all sessions: English - Team A 99%, Team B 99%; History - Team A 97%, Team B 97%; Geography - Team A 97%, Team B 94 %. IOR for ***Out of seat*** across all sessions: English -Team A 90%, Team B 90%; History - Team A 99%, Team B 98%; Geography -Team A 98%, Team B 97%. In the final two conditions teachers were asked to provide positive comments for good behaviour. IOR was 100% across all sessions.

Procedure

A multiple baseline design across classes was used. After an initial baseline period for each class, the Good Behaviour Game was

introduced for two sessions; winners were announced at the end of each session. Next there was a return to baseline conditions for another two sessions before the second intervention took place. In this condition the Good Behaviour Game was again instigated and the teachers were given direct instruction beforehand to increase their positive comments to the students regarding their good behaviour; as before, winners were announced at the end of each session. Finally there was a return to baseline conditions.

The appropriateness and variability of numerous consequences for the appropriate behaviours during the Good Behaviour Game were discussed with the teachers. After a lengthy discussion it was decided that confectionery items would be used as ‘reinforcers’. The researcher sat at the back of the classroom so each student was in clear sight. The frequencies of the three target behaviours were recorded for each of the two teams on a tally chart. The students were aware in this phase of the nature of the researcher’s visit.

Before the first intervention was introduced the rules of the Good Behaviour Game and how to play it were explained to the class:

> Today, we will play a game during class called the Good Behaviour Game and to play it the class will be divided into two teams, Team A and Team B. Your teacher shall pick the teams and the rules are as follows:

1) No talking out without permission from the teacher;

2) No turning around in your chair.

3) No leaving your seat without permission from the teacher;

I will explain these rules in more detail so everyone understands.

(1) ***Talking out***: This means no talking out during class without the permission of the teacher. This includes any silly noises made, laughing or yawning loudly. You are not allowed to talk to any of your classmates. If you want to talk you must raise your hand and wait until the teacher addresses you.

(2) ***Turning around in chair***: This means you are not allowed to turn around in your seat. You are not allowed to turn around to look at the person behind you or to turn around to talk to them or for any other reason.

(3) ***Out of Seat***:This means you are not allowed to get out of your chair during class. If you want to get up to go to the bin for example or pass a pen to a classmate you must raise your hand and ask your teacher. If you leave your seat without permission your team will be given a mark. The team with the fewer marks at the end of class will be the ‘winning’ team.

> This game will be played over the next few months, in subjects English, History and Geography. If someone in your team does not adhere to the rules that have just been read out, your team will receive a mark. Please note, that it is the team with the least number of marks at the end of the class that are deemed the 'winners' and each member of that team will receive a prize. The prize will be the opportunity to pick a bar of chocolate from a variety of different types.

The rules were displayed at the front of the classroom each time the game was in play and not at any other times. During sessions when the Good Behaviour Game was to be played the rules were read out again by the teacher.

Results

Figures 1-3 show the results for all behaviours in all conditions. Figure 1 shows the frequency of ***Talking out*** across sessions. During the initial baseline (Condition BL-1) the frequency of this behaviour varied between 25-230 for Team A, and 25-210 for Team B. Within classes the performances of each team were fairly similar but across classes the performances were distinct. In Geography, apart from Sessions 2 and 6, the behaviour was fairly low compared to other classes. During this class students were colouring in maps and they were often relaxed and chatted to each other while they coloured in. Baseline frequencies for ***Turning***

around in chair in this class were also low compared to other classes (Figure 2). In general, across classes the frequencies of this behaviour for each team were also fairly similar apart from during Sessions 2 and 4 in English and Sessions 4 and 6 in Geography. The variability observed in Geography is related to with the work the student were carrying out. If one student had no markers or a certain colour he/she would turn to the person behind and ask to borrow one. The frequencies for this behaviour increased steadly across sessions in History. Regarding ***Out of seat*** behaviour, peformances of each team were also fairly similar across sessions within each class (Figure 3). However, the relatively low frequencies of this behaviour compared to the other behaviours meant peformances across classes were less distinct. During Session 2 frequencies increased to 10 for team A and 12 for team B. During this time the class were using pencils to trace out maps and often got out of their seats without permission to sharpen their pencils. Also, the teacher herself had put in place a class-room management procedure by saying to the class ‘’whoever plays up today will be kept behind for lunch’’ and she always carried through with this.

During the first introduction of the Good Behaviour Game (Condition GBG-1) there was a reduction in the frequency of all behaviours for each team in all classes apart from ***Turning around in chair*** during geography where this behaviour was already at a low frequency. This decrease was more marked for those behaviours that had been occurring at a relatively high rate. Frequencies of ***Talking out*** recovered substantially for each

team during the second session in Geography class. A sub-teacher took the class on this day and the students were very unsettled. One student turned around to the researcher and said ‘’Oh, we are going to take a hand out of him today!’’

During the return to baseline (Condition BL-2) there was a substantial increase in frequency of ***Talking out*** for both teams in English class; in Session 9 it took the teacher 12 minutes to get the class settled and this time was spent reprimanding the class for inappropriate behaviours. Frequencies of ***Talking out*** remained low for each team in History and decreased substantially in Geography. During Geography the teacher was disappointed that the Good Behaviour Game would not be in effect and took it upon herself to conduct her own ‘Good behaviour game’. The class was divided into two teams and advised the class whichever team had the lowest score would get out for lunch early. The teacher put these contingencies into place during each subsequent baseline session. A failure to return to basline levels for each team was also observed for ***Turning around in chair*** in History and Geography, while frequences increased substantially during English classes. Frequencies of ***Out of seat*** behaviour also recovered to some extent during English and History classes return but not during Geography class.

The second introduction of the Good Behaviour Game (Condition GBG-2) was accompanied by an instruction for teachers to increase the number of positive comments given for good behaviour. At the start of this condition

the English teacher asked the researcher ‘’if the game was in effect’’. When told ‘’Yes’’, the teacher replied, ‘’Aww, thank God!’’. The frequency of all three disruptive behaviours was very low for each team and across classes. Across all classes the frequences of positive comments directed towards reductions in these disruptive behaviours was very low in all classes. In the final return to baseline (Condition BL-3), frequencies of ***Talking out*** increased again for both teams in English and History, though more so during English. Frequencies for this behaviour were at near zero levels during Geography. Frequencies of positive comments with respect to this behaviour were also at near zerso levels across all classes. Frequencies of ***Turning around in chair*** also recovered for both teams in English class but not in the other classes. There was also little change in the frequencies of positive comments compared to the previous condition. ***Out of seat*** behaviour recovered to previous baseline levels during the first session for one team in History class but across all teams and all classes this behaviour had reduced to near zero levels by the end of the study. Regarding positive comments, there was a spike in frequency in the first session during English class, but this had reduced substantially by the final session. For the other classes, the reduced frequency of disruptive behaviours by both teams was not accompanied by a general change in the frequency of positive comments.

Discussion

The aim of this study was to put in place basic procedures associated with the Good Behaviour Game to manage disruptive behaviours in three classes in a school in N. Ireland. In one condition where the game was in effect, additional instructions were given to teachers to deliver positive comments for good behaviour. This was done to see if positive comments by teachers would help maintain performance when the Good Behaviour Game was removed.

Overall, the Good Behaviour Game had a major impact on student behaviour producing substantial reductions in those behaviours identified by teachers as being disruptive in classroom. In terms of social validity, the game was discussed often within the staff-room and the researcher was asked by the principal to give a presentation on the Good Behaviour Game to all the staff during a pastoral meeting. The effects on student behaviour were so much welcomed by staff that one teacher (Geography) implented her own version of the game during what was supposed to have been baseline conditions (BL-2 and BL-3). Rather than prevent her from disrupting the experimental design as planned we didn't comment on her behaviour but instead allowed her to continue with her arrangements. We did this was because the changes in her behaviour arose as a function of the contingencies associated with the Good Behaviour Game and as such were a valuable measure of the effects of the game rather than a problem per se. In effect, we saw how the game that was under the control of the researcher changed both student and staff behaviour. Indeed, all

three teachers stated they would be playing the game with other classes they teach.

When the first game was first implemented one teacher was particularly skeptical of it working. After the game was over and the students left the classroom the teacher approached the researcher and said ‘’That was amazing!”. She said she was able to teach a full class with no interruptions whereas previously classroom control was normally minimal. She commented on how much more academic work had been completed since the Good Behaviour Game had been put in place.

Before the game was played in class, one student very clearly stated his dislike of the game and its rules, but he did agree to play. After one session of the game, and despite being on the losing team, he approached the researcher saying ‘’I am going to try really hard next time’’. He did, and his change in behaviour was often commented upon by other teachers and by the head of year when she entered the classroom.

At the beginning of each session the researcher was asked by both the teachers and the students whether or not the game was in effect. In one session a student had her hand up to gain the teacher’s attention, then quickly took her arm back down while saying out loud, ‘’I forgot we aren’t playing the game today’’ and went on to call out ‘’Miss, Miss!’’. This was a good illustration of the power of the discriminative control developed by the contingencies associated with the game. But it also illustrates the need for maintenance procedures when the game is removed. In other words, without the differential reinforcement

contingencies for good behaviour the students engaged in disruptive behaviour.

This might imply that the game makes the students 'prompt dependent' in that it doesn't encourage them to engage in appropriate behaviour without contrived procedures. Such arguments misunderstand the concept of discriminative control and the need for maintenance procedures to ensure generalisation of behaviour (Cooper, Heron, & Heward, 2007). Unfortunately, the issue of prompt dependency has been raised in another context where attempts have been made to introduce behavioural technology for children with autism. N. Ireland has been extremely recalintrant when it comes to using the science behind the Good Behaviour Game for the benfit of families and children (Keenan et al, 2014). The main problem is that many teachers are not trained in a science of behaviour and myths often get in the way of the dissemination of accurate information A classic myth is that behavioural interventions are method driven and therefore not child-centered, nor holistic in perspective. Others have addressed these misrepresentations (e.g., Heward, 2003; Jensen & Burgess, 1997; Morris, 2009) but the point is raised here precisely because of concern about what happens when training in a science of behaviour is not an intregal part of teacher training (cf. Carter & Norman, 2010). A well trained teacher would design contingencies to ensure that prompt dependency did not occur. A teacher not trained in behaviour analysis might use 'behavioural techniques' and have no understanding of what to do if prompt dependency occurs because of how the 'behavioural techniques' were implemented in a class.

The initial baseline performances of the children in this study testify to the lack of skills on the part of the teachers to deal with disruptive behaviours. Despite the many years of research that have demonstrated the effectiveness of the Good Behaviour Game, and despite the wealth of research conducted by behaviour analysts more generally, the science has yet to achieve a strong foot-hole in the UK and Ireland, or in the rest of Europe.

Previously, we noted that the usual strategy used by teachers had been to cajole students into behaving appropriately through the use of threats or punishments. Here, the teachers used reprimands, recording students names in diaries, keeping them in at lunchtime, sending them to the principal, moving them to another room, detention, negotiations with students who pleaded for extra chances. But the high frequencies of disruptive behaviour indicate that such social contingenices only served to maintain the problem behaviour. Furthermore, the final return to baseline showed a clear tendency for these behaviours to recover for English and History, but not for Geography where the teacher had already begun implementing her own version of the good behaviour game. A basic introductory class in behavour analysis could have taught teachers how to problem solve in their classrooms. Unfortunately, the scientist-practioner model is actively discouraged because of misinformation on the science from which effective procedures have been devised. A survey by Schwieso and Hastings (1981) indicated that most teachers' acquaintance with this discipline was limited to a few lectures during initial training. Across the UK, Masters level training in behaviour

analysis is mostly unavailable (BACB, 2015). Where it is available, a large percentage of those trained to international standards comes from the Education sector.

One the most revealing findings in this study was the rate of positive teacher comments. When the study was designed we had hoped to determine whether a realtively high frequency of positive comments would alleviate the effects of removing the consequences integral to the Good Behaviour Game. After all, if good behaviour was produced during the game and if, additionally, it was actively reinforced by teacher comments, then it might be the case that low rates obtained during the game would persist when the game was removed because the teacher's comments alone would be sufficient. To our surprise the frequency of postive comments was minimal for all three teachers during the game and also in the final return to baseline, with one exception. In Session 12 in English (BL-3), there was a spike in the number of postives delivered by the teacher but by the next session this peformance did not reappear. This was because the teacher's postives were in the form of both stickers and praise in Session 12, but by the following session there were no stickers remaining.

When the Good Behaviour Game was first devised, it was promoted as an example of how a science of behaviour might contribute to the management of problem behaviours in natural settings. The need for further training in the science of behaviour analysis in the UK would offset comments like this from an Educational Psychologist:

> What is a scientific study without random assignment to groups? (Hughes, 2015)

There are many procedures within any science but randomised control trials have their limitations (Keenan & Dillenburger, 2011). Group designs alone do not bring the teacher into contact with individual students in ways that are meaningful for promoting a learning environment that helps children achieve their potential (Busacca, Anderson, Moore, 2015; Vargas, 2013). The logic in using single-case design methodology in a classroom, whether for individal participants, or for groups of participants, is informed by an understanding of what it means to bring a scientific perspective to bear on all aspects of learning. The findings reported here evidence both the effectiveness of specific procedures devised by a science of behaviour and at the same time they highlight concerns for teacher training when they are not fully briefed as to why these procedures work.

Manualised procedures that require minimal training in an education setting have their pros and cons (Keenan, Dillenburger, Moderato, & Röttgers, 2010). Gokey and Pritchard (2015) highlight the value with the Good Behaviour Game:

> The Good Behavior Game and the Reward and Remind programs present the science of behavior in a way that is approachable and understandable to those outside the field of behavior analysis. Embry has “translated” the literature in ways that re-brand the entire field and transform the way implementers see themselves. In other words, Embry creates “everyday scientists.” This isn’t such

> a radical idea: children display natural tendencies towards scientific exploration. Being an “everyday scientist” is a potent concept, one that strikes a chord with nearly everyone involved with the program. (p. 38)

However, if teachers use the Good Behaviour Game game without an understanding of the principles of behaviour upon which it is based, then many of the concerns of the gatekeepers who prevent the uptake of a science of behaviour in the commuity would be entirely reasonable. There isn’t sufficient evidence here to come to a definitive conclusion about how teachers would use the game, but the data are suggestive that they would indeed use it in an unreflective fashion. This is disconcerting also to a behaviour analyst. But it would arise because teachers have not been educated about the nature of contingencies of reinforcement and hence remain unaware of how to identify and hence manipulate key variables over which they have jurisdiction when they are designing an effective learning environment (Duke, 1979; Emmer & Stough, 2001; Martens, 1990; Vargas, 2013). A recent newspaper report in Ireland makes this point very clearly:

> A game-based programme which was implemented in 21 classrooms across Ireland in early 2015 has proven to be a success with many teachers claiming that it's the "most effective intervention" they have used in their classrooms. (Brady, 2015).

By saying this was the most effective intervention, it begs the question ‘What principles guided their decision making when managing classroom behaviour before they purchased a commercial product

based on the findings from a science of behaviour that has been around for decades?'

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Figure Captions

Figure 1: The frequency of **Talking out** by students in each session and the frequency of **Positive Comments** by teachers in the final two conditions.

Figure 2: The frequency of **Turning around in chair** by students in each session and the frequency of **Positive Comments** by teachers in the final two conditions.

Figure 3: The frequency of **Out of seat** by students in each session and the frequency of **Positive Comments** by teachers in the final two conditions.

Figure 1

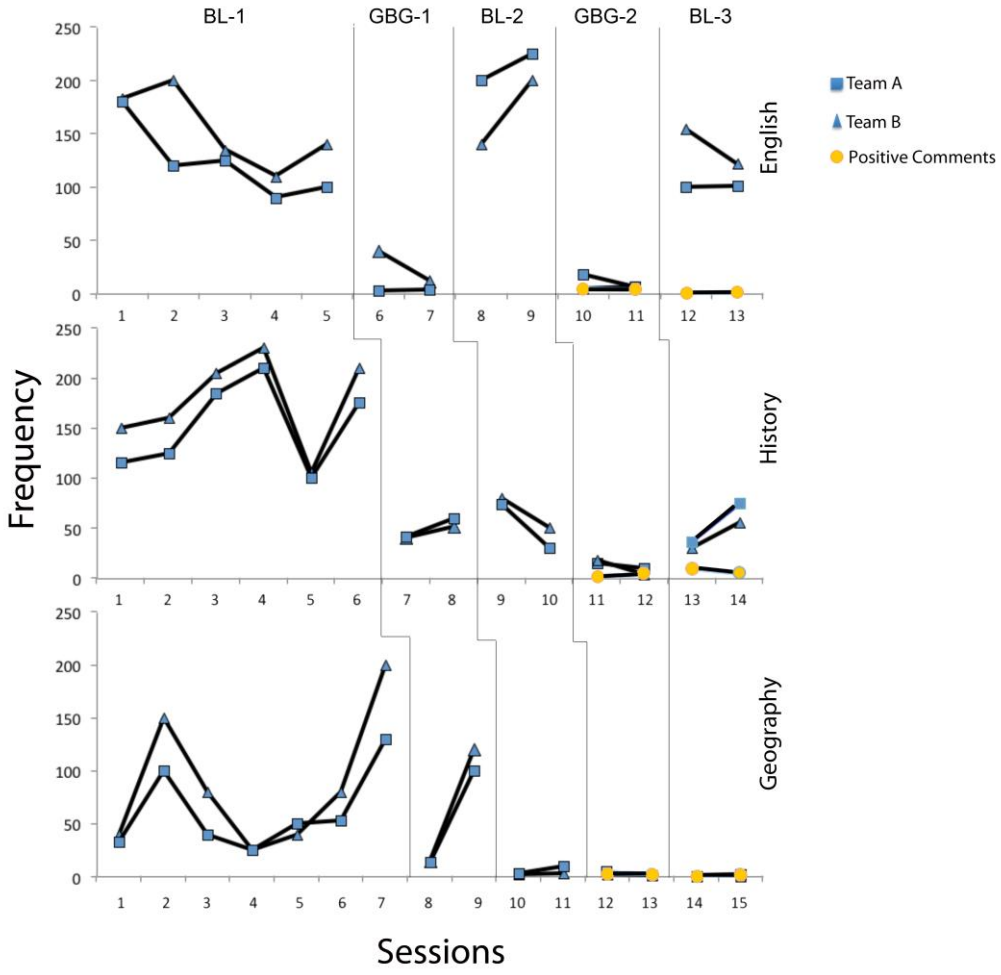

BL-1
GBG-1
BL-2
GBG-2
BL-3
English
History
Geography
Frequency
Sessions
Team A
Team B
Positive Comments

Figure 2

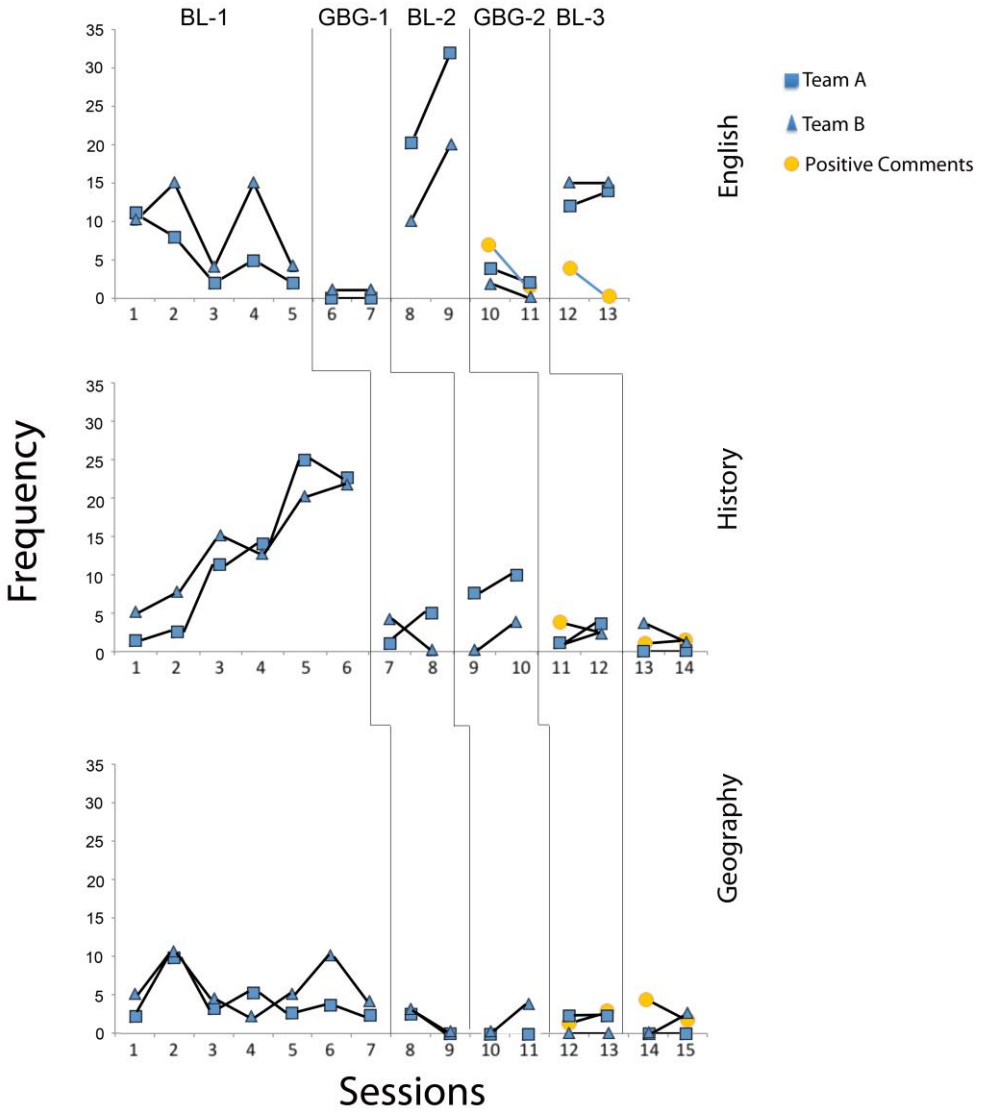
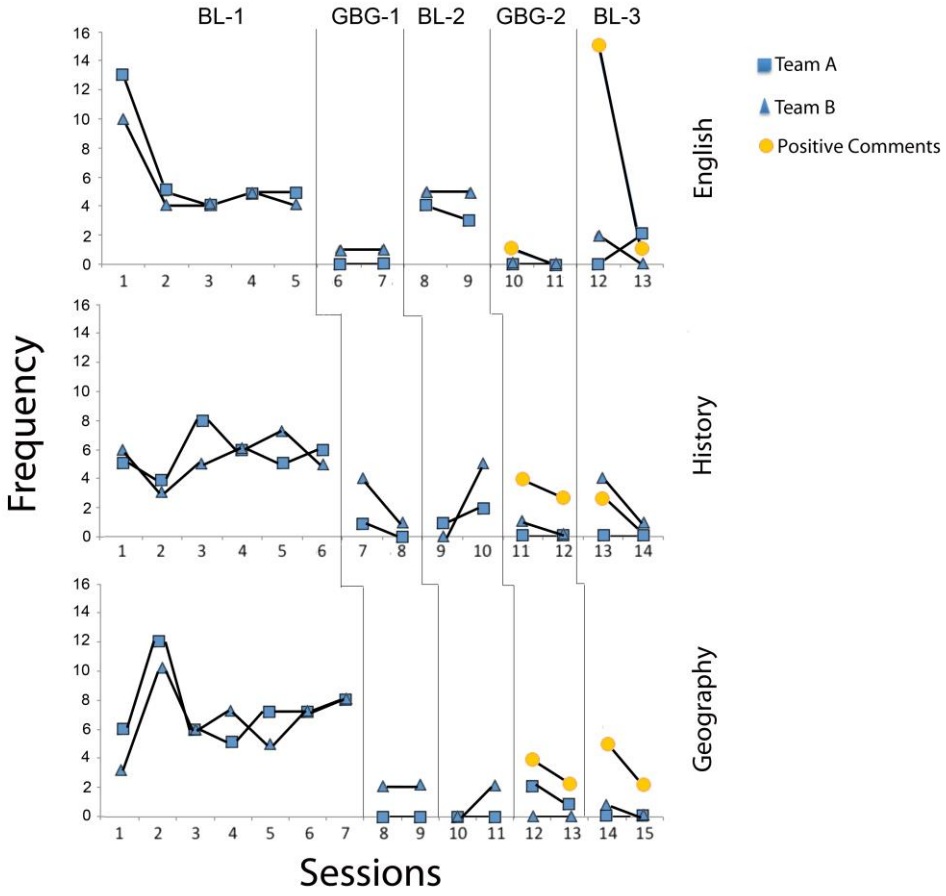

BL-1
GBG-1
BL-2
GBG-2
BL-3
Team A
Team B
Positive Comments
English
History
Geography
Frequency
Sessions

Figure 3


BL-1
GBG-1
BL-2
GBG-2
BL-3
Team A
Team B
Positive Comments
English
History
Geography
Frequency
Sessions